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SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/309,868 09/21/94 YASUI

H 28
EXAMINER
SHERRER, C

ART UNIT PAPER NUMBER

6

13M1/0626
FLYNN, THIEL, BOUTELL & TANIS
2026 RAMBLING ROAD
KALAMAZOO, MI 49008

1302
DATE MAILED:

06/26/96

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☐ Responsive to communication filed on _____ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- ☒ Notice of References Cited by Examiner, PTO-892.
- ☒ Notice of Draftsman's Patent Drawing Review, PTO-948.
- ☒ Notice of Art Cited by Applicant, PTO-1449.
- ☐ Notice of Informal Patent Application, PTO-152.
- ☐ Information on How to Effect Drawing Changes, PTO-1474.
- ☐

Part II SUMMARY OF ACTION

1. ☒ Claims 1-10 are pending in the application.

Of the above, claims 7-10 are withdrawn from consideration.

- ☐ Claims _____ have been cancelled.
- ☐ Claims _____ are allowed.
- ☒ Claims 1-6 are rejected.
- ☐ Claims _____ are objected to.
- ☐ Claims _____ are subject to restriction or election requirement.
- ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
- ☐ Formal drawings are required in response to this Office action.
- ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).
- ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).
- ☐ The proposed drawing correction, filed _____, has been ☐ approved; ☐ disapproved (see explanation).
- ☒ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☒ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.
- ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
- ☐ Other

EXAMINER'S ACTION

Part III DETAILED ACTION

Election/Restriction

1. Claims 7 to 10 are withdrawn from further consideration by the examiner, 37 C.F.R. § 1.142(b), as being drawn to a non-elected apparatus, the requirement having been traversed in Paper No. 5.

2. Applicant's election with traverse of the restriction requirement in Paper No. 5 is acknowledged. The traversal is on the ground(s) that a search for the apparatus would necessarily be entailed when searching for the process claims. This is not found persuasive because the apparatus can be used for purposes other than those found in the process claims.

The requirement is still deemed proper and is therefore made FINAL.

3. This application contains claims 1 to 7 drawn to an invention non-elected with traverse in Paper No. 5. A complete response to the final rejection must include cancellation of non-elected claims or other appropriate action (37 C.F.R. § 1.144) M.P.E.P. § 821.01.

Priority

4. Receipt is acknowledged of papers submitted under 35 U.S.C. § 119, which papers have been placed of record in the file.

Specification

5. To insure proper consideration, applicant should provide the examiner with a copy of the foreign art cited in the specification (pages 2, 3) because it is not readily available to the examiner.

6. The disclosure is objected to because of the following informalities:

- a. The scope of "night soil" is not known;
- b. The specification is replete with misspellings and idiomatic English.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. Claims 1 to 6 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. There is no antecedent basis for the phrase "the aeration tank" as found in Claims 1 and 6.

9. There is no antecedent basis for the phrase "the aerated aqueous suspension" as found in Claims 1 and 6.

10. There is no antecedent basis for the phrase "the aqueous suspension" as found in Claims 1 and 6.

11. There is no antecedent basis for the phrases "the VSS/SS ratio of the biosludge" and "the MLVSS value" as found in Claim 5.

Claim Rejections - 35 USC § 103

Art Unit: 1302

12. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

13. Claims 1, 2, 5 and 6 are rejected under 35 U.S.C. § 103 as being unpatentable over Dorau et al. (U.S. Pat. No. 5,362,395) in view of Hei et al. (U.S. Pat. No. 5,484,549) or Berndt (U.S. Pat. No. 5,520,888) or Kramer et al. (U.S. Pat. No. 5,215,554).

14. Dorau et al. teach the biological purification of sewage whereby sewage flows into a bioreactor after which it sent through a membrane ultrafilter which is then sent to a filtrate basin. From there, the treated sewage is sent to a reactor basin and there ozone is introduced into the sewage stream. At the reactor basin chemicals "for the chemical or physical treatment of the concentrate can be supplied." (Col. 10, lines 35 to 45). The stream then flows back into the bioreactor to complete the recycle loop. (See the Figure).

15. While Dorau et al. teach the addition of chemicals to the sewage at the reactor basin, they do not specify the scope of what chemicals would be added. Therefore, there

is no mention of the addition of acid to adjust the pH into the range claimed by

Applicants nor is there any mention as to what the pH value might be..

16. Hei et al. and Berndt and Kramer all teach the effects of pH on the solubility of ozone in an aqueous solution.

17. Hei et al. teach, at col. 3, lines 38 to 53, the "low solubility and instability of ozone is substantially enhanced as the pH increases past 6".

18. Berndt teaches, at col. 4, lines 48 to 60, the well known effect of pH on the solubility of ozone.

19. Kramer et al. teach, at col. 41, lines 14 to 30, the well known adverse effects of high pH's on ozone stability.

20. It would have been obvious to one of ordinary skill in the art to add chemicals, such as those taught by Hei et al. and Berndt and Kramer et al. to modify the pH of Dorau et al. since Hei et al. and Berndt and Kramer et al. teach that high pH's adversely affect the stability and solubility of ozone.

21. It is considered that Applicants have merely employed well known waste processing technology in conjunction with routine optimization that produced the expected results. Specifically, it is considered that Applicants have optimized the pH and temperature to obtain the desired final solids level.

22. Claim 3 is rejected under 35 U.S.C. § 103 as being unpatentable over Dorau et al. (U.S. Pat. No. 5,362,395) in view of Hei et al. (U.S. Pat. No. 5,484,549) or Berndt (U.S. Pat. No. 5,520,888) or Kramer et al. (U.S. Pat. No. 5,215,554) and in further view of Brock (Biology of Microorganisms pp. 214 and 215).

23. Dorau et al. in view of Hei et al. or Berndt or Kramer et al. teach that which is cited above but do not disclose lowering the pH by acidogenesis.

24. Brock broadly discloses the well known effect of microorganisms on the pH. One example of man's use of this pH-lowering-effect by anaerobic fermentation is in the production of pickles (page 215) "by allowing acidity to develop directly in the food through microbial action.

25. It would have been obvious to one of ordinary skill in the art Dorau et al. in view of Hei et al. or Berndt or Kramer et al. and in further view of Brock since it well known to utilize organisms to lower a solution's pH and thereby optimize the use of ozone.

26. Claim 4 is rejected under 35 U.S.C. § 103 as being unpatentable over Dorau et al. (U.S. Pat. No. 5,362,395) in view of Hei et al. (U.S. Pat. No. 5,484,549) or Berndt (U.S. Pat. No. 5,520,888) or Kramer et al. (U.S. Pat. No. 5,215,554) and in further view of Brock (Biology of Microorganisms pp. 202 to 204).

27. Dorau et al. in view of Hei et al. or Berndt or Kramer et al. teach that which is cited above but do not disclose the heating of the system fluids.

28. Brock broadly discloses the well known effect of temperatures on thermophilic microorganisms. Specifically, thermophiles grow at temperatures of 50°C and higher. An example of a thermophile environment is that of a compost pile whose temperatures "usually reach 60 to 65°C" (page 204, top).

29. It would have been obvious to one of ordinary skill in the art Dorau et al. in view of Hei et al. or Berndt or Kramer et al. and in further view of Brock since it well known that decomposing organisms operate at higher temperatures.

Conclusion

30. No claim is allowed.

31. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

32. Levin (U.S. Pat. No. 3,236,766) discloses a sewage treatment process.

33. Westgarth (U.S. Pat. No. 3,235,487) discloses a sewage treatment process.

34. Grich et al. (U.S. Pat. No. 3,300,402) disclose the purification of putrescible unstable wastes.

35. Kirk et al. (U.S. Pat. No. 4,136,023) disclose methods for treating waste water.

36. Lowther (U.S. Pat. No. 4,178,239) discloses biological intermediate sewage treatment with ozone pretreatment.

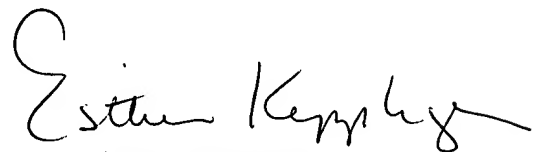
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37. De Longe (U.S. Pat. No. 4,225,431) discloses a process for the treatment of aqueous waste.
38. Ebara (Jap. Pat. No. 7,019,100) disclose the treatment of sludge.
39. Anjinmoto (Fr. Pat. No. 2,668,765) disclose an activated sludge process.
40. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis Sherrer whose telephone number is (703) 308-3847. The examiner can normally be reached on Monday through Friday from 6:00 to 2:30.
41. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Esther Kepplinger, can be reached on (703)-308-2339. The fax phone number for this Group is (703)-305-3602.
42. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0651.



Curt Sherrer

June 20, 1996



ESTHER KEPPLINGER
SUPERVISORY PATENT EXAMINER
GROUP 1300